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VOLUME 9 NUMBER 4

APRIL, 1919

Phytopathology

Official Organ of the

American Phytopathological Society

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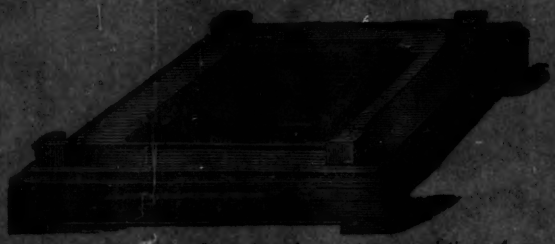

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PHYTOPATHOLOGY

VOLUME IX NUMBER 4

APRIL 1919

OUR JOURNAL, PHYTOPATHOLOGY

L. R. JONES[1]

The story of our journal is simple, and it must prove prosy to listen to what you already well know. The chief things, indeed, are those written in the pages of Phytopathology: the character of contributions, financial limitations, editorial personnel and policies. It is suggested, however, that certain parts of the "unwritten history" should on this tenth anniversary be recorded, that those who, hereafter, note our "sins of omission" may be the more lenient in judgment and those who later direct our journal's development may do so with understanding of the early ideals.

THE SOCIETY ORGANIZED AROUND THE JOURNAL

He who has been our one Secretary can best explain how spontaneous was the Society's origin. Its elements were already present, as it were in over-saturation, for instant crystallization into stable and permanent form the moment the focal point was defined. And it should never be lost from our traditions that the Society was organized around and for the journal. This needs to be here written and witnessed that confusion may not later follow from the incident that it took us a year to produce the first number. The necessity of the separate organization for the maintenance of our journal brought the negative decision when we were later asked to merge the Phytopathological Society completely with the new Botanical Society of America. And I think that all of those who have held the faith from the beginning, are satisfied that the value of our journal to us individually and collectively has justified these decisions and efforts.

[1] Read at the Tenth Anniversary Dinner of the American Phytopathological Society, Baltimore, Md., December 25, 1918.

THE NEED OF OUR JOURNAL AS SUPPLEMENTING OTHER PUBLICATIONS

The gain through the appearance of Phytopathology has been two fold—the objective and the subjective. The first, because many worthwhile things have come to handy print which had otherwise been scattered or lost. The second, because seeing these has stimulated others to put more on record.

Reddick (Phytopathology, **8**: 182) has wisely warned against one of the most insidious temptations that deceives the investigator—to let his zeal in research excuse his delay in publication. Too often have we seen this pass from the stage of the natural and worthy modesty of the youth, unable quite to make his maiden manuscript meet his ideals, to that of the hopeless scientific recluse, as unfitted to bring himself to the exchange of results through the channel of publication as the miser is to barter his gold. The miser's coin were better unminted since all it represents is selfishly perverted human effort. How much more commendable or less selfish is the hoarding of ideas? And with our ideas as with our gold, gain normally follows legitimate exchange.

But even with such faith as was held in the mission of our journal I am glad that those who started it—with fear and trembling, be it said—could not foresee the early inaugural of the splendid Journal of Agricultural Research and of that younger but somewhat more stately sister, the American Journal of Botany. Had either (not to say both) of these publications been prophesied I fear that even the optimist would have feared the extinction of Phytopathology early in its struggles, and with a plaint like the waif of the classic doggerel:

> "It is so soon that I am done for
> I wonder what I was begun for?"

As a matter of fact, however, it was from the outset realized that the chief need in our American professional circle was not for a heavy research journal. In this respect our conditions differed from those which later gave rise to the American Journal of Botany. Few, if any, lengthy American manuscripts representing properly matured research in Phytopathology had, to my knowledge, lacked adequate opportunity for publication even before the appearance of our journal. Nor have its pages been regularly or consistently occupied with matter of this sort. No one who has caught the spirit of American botanical literature would think of turning to Phytopathology for such articles as Smith's final publications on crown gall, Shear's on Glomerella, or Freeman and Stakman's on disease resistance in wheat.

Does this mean that our journal has failed to realize its true mission? Does it follow that the Society which it represents is content with lower

standards or has less able membership than sister societies whose journals seek exclusively the heavier research articles?

AIMS AND CONTENTS CHARACTERIZED

Let us again make record of ideals which have dominated our journal's management from the outset, so that if any in the future would make apology or criticism it may be for judgment or method and not for aim or purpose. So far as I know, no one has ever thought of the chief mission of Phytopathology as any other than to stimulate and advance the research spirit in our profession. From the outset its writings on practically every page have been addressed to American phytopathologists as investigators. Many of us have had other phytopathological interests, e.g., class room teaching, extension, field demonstration, and some of the most significant developments of the last decade in American work have been along these lines. Nevertheless, there is little reflection of such activities other than research in our journal. Even so significant a movement as the plant disease survey has occupied scant space. On the other hand, were one to take these pages as his chief index to the strength or depth of American phytopathological research during the last decade, he would find inadequate definition of our best standards and must underestimate our progress.

Not even in our review columns have we a uniformly discriminating portrayal of what is best in the American output of these years. For this condition regarding reviews I have personally felt regret. Not that we have so much needed it ourselves, but that our foreign readers naturally and rightly must have expected it. This is, however, in keeping with the other evidences that our journal has been the simple wholesome expression of our genuine needs with constant regard to the limitation of our resources. While the aim of Phytopathology has been consistently the promotion of research, these evident financial limitations have so guided the editorial policies as deliberately and avowedly to divert the longer articles and those requiring much or costly illustration, so far as practicable, to state and national publications. This has kept our limited space available for reasonably prompt publication of the briefer research articles—often preliminary summaries, reports of progress, or timely notes—of which the completed account might be expected later in government publications. At the same time our columns have offered ready opportunity for any of the heavier contributions where the author's official connections did not secure for him the adequate outlet, e.g., Henderson's article on Phoma in the recent August issue.

Regarding Phytopathology as supplementary to government publications, I add for record that probably all who have long been in state or

national service realize the importance of maintaining a non-official organ as a "safety valve" that cannot be bound down by red tape. I think it may safely be said that since the foundation of our journal no member of our Society has been without opportunity for prompt publication of any phytopathological manuscript of merit, of whatever length or character. Quite apart from those, sometimes irksome but apparently unavoidable, limitations inherent in government publications, I think the men from the states at least will agree that our institutional bulletins and reports are annually becoming less satisfactory as the sole repositories of research matter. The overwhelming stream of extension publications hopelessly engulfs and sweeps from attention the occasional research bulletin. Do we not owe it, therefore, to our subject, to our American colleagues, and especially to foreign phytopathologists, regularly to publish in Phytopathology at least some abstract of any such matter as a guide to the completer article? Indeed much of the interesting matter in Phytopathology from the outset has consisted of just such things, in the form of either preliminary publications or summaries, of which the fuller or final publication has appeared elsewhere. In addition there are the various minor research articles and phytopathological notes of much timely interest and permanent value, but of such fragmentary or disconnected nature that they would not find place in the official channels and, were it not for this ever ready respository, would remain indefinitely lodged in our notebooks or filing cases.

As supplementing the original matter all have, I think, from the outset welcomed the things of other kind with which each number closes, whether personal notes, literature lists or reviews. For my own part the personal news notes are each year becoming more welcome. Through these we are being introduced to our younger recruits and may follow their earlier migrations—and here we often first learn of the losses to our ranks which with passing years must become more numerous and more personal.

As for the reviews, I have already voiced my lack of full satisfaction with them. Since my own editorial efforts in this field were of no more avail than my successor's, I may express my judgment without hesitation. Our reviews have never been a credit to the journal and have indeed been misleading rather than helpful, in my opinion. They have doubly failed in that they have neither consistently included what was best nor condemned what deserved criticism in our literature. With the appearance of Botanical Abstracts may we not wisely omit further reviews, as such. In the exceptional case discussion of anything uniquely deserving attention (whether at home or abroad) may appear in the form of a phytopathological note.

On the other hand, Miss Oberly's literature lists have been most ably and helpfully compiled. I wish to take this occasion to express my personal appreciation of her assistance in this and I am sure the editors and Society will wish to join in thanking her for the service so efficiently rendered. I presume that with the appearance of Botanical Abstracts the question will also arise as to the continuation of this list. Personally, I favor its retention and in exactly its present form. It is, and must continue, more uniformly up to date and more inclusive than the Abstracts and is so concise and accurate that it would be a serious mistake to permit its interruption. We should recognize the human limitations of even so able an abstract editor as we now have, and also that individual endurance will probably not be such as to give us the same abstractors indefinitely. There can be no such assurance, therefore, of uniformity, and continuity in abstracts as in our more mechanical type of literature list. Again, therefore, I urge its uninterrupted appearance.

THE SOCIETY'S JOURNAL

Phytopathology began as the Society's journal, every issue has so been and thus may it ever continue. It is the expression and embodiment of the three prime characteristics of our Society; youthful vigor, zeal for service, and American democracy.

Regarding the first let us add that we should not, must not, lose our youth. For this reason we must continue initiating the young pathologists early into our circle and by giving them their proper recognition and responsibility insure perpetual renewal of our Society's vigor. And the second point is a corollary of the first. For if the journal of the Society is to be primarily of service to the Society it must help chiefly our younger members. Let its columns continue in the future as in the past to be freely open to their "maiden manuscripts." Not, let me warn, regardless of standards; to do this would be to work harm rather than good. Here must continue to rest a serious editorial responsibility. May I emphasize this point that its significance be not overlooked. I have some times heard expression of regret—and may have momentarily joined in it myself—that Phytopathology was not more largely or exclusively the channel of publication of our maturer members. But let us recall the points made earlier. Were it so what would we gain, since for most of these the regular professional channels are open? The encouragement of our young men must continue as one of our peculiar opportunities and large responsibilities.

Our Society and its journal were founded and have continued in a spirit of democratic inclusiveness. I wish in closing to emphasize this

third point that we may continue ever to preserve this traditional relation as happily as heretofore. An insidious danger in such an organization of busy and widely scattered men is that the majority of us neglect our part and force the responsibility of management permanently upon the few. While we must, of course, delegate the editorial tasks, term by term, to selected men, we as electors should never forget, and they as editors should never let us forget, that Phytopathology remains the Society's journal.

It was to safeguard this principle that we decided early upon two customs which experience thus far has proven so sound that I trust they may prevail indefinitely. The first is rotation on the editorial committee, limiting incumbency, even with the chief editor, to three successive years. The second is some geographical oscillation. While it is probably true that, in general, the chief editor should be an eastern man, we should at least aim at alternation as between a representative from the Department of Agriculture and from the State institutions. If this is not done with mechanical precision it should at least occur regularly enough to guard against the natural but, I believe, seriously objectionable tendency for gravitation more and more toward the central body. Do not mistake the idea,—it is not that there would be any conscious effort to draw it there, but rather that it will require the persistently conscious effort to ward it off. It is so logical, and for us men in the State institutions so easy, that we will forever be tempted thus to unload the burden. Let us beware of the danger from, in this or any other way, narrowing or limiting the circle of responsible management. May our journal ever remain broadly representative of that spirit which is pledged through democratic methods and organization to stimulate in the fullest degree service through research in phytopathology.

UNIVERSITY OF WISCONSIN
MADISON, WISCONSIN

FIRST DECADE OF THE AMERICAN PHYTOPATHOLOGICAL SOCIETY[1]

C. L. Shear

We meet tonight in the city in which the Society was organized ten years ago to celebrate the completion of the first decade of our existence.

The development of botany in general and of phytopathology in particular has been so rapid in recent years that except for Professor Whetzel's fine sketch no one has stopped to record its history. Most phases of history can be best interpreted by retrospect, but it is important that exact records of the facts as they occurred be available for a proper interpretation by future writers.

The Botanical Society has a standing rule that "The secretary be instructed to prepare once each decade a brief historic sketch of the Society." I think the pathologists might well adopt a similar practice. The present account we trust will serve to establish a precedent which will be followed by this Society in the future.

The origin and evolution of scientific societies is a vast and complicated subject, which has never been specially treated, so far as we are aware, and I will hasten to say for the consolation of those present that I do not propose to undertake the task this evening.

It is generally agreed by scientists, I believe, that if an organ or organization appears before conditions and environment are suitable for its use and development it is doomed to discouragement or disaster. A striking illustration of this is found in the recent history of Russia. The attempt to change suddenly from an autocracy to a democracy resulted in the dire disaster about which we have as yet had only scanty information, but the horrors of which I fear none of us can realize.

The rapid development and success of our Society appear to be sufficient evidence that it was organized at a time when conditions were favorable and there was a real need for such an organization.

During the summer and autumn of 1908 the writer suggested to several of his colleagues in the Bureau of Plant Industry, especially Mr. W. M. Scott and Dr. Wm. A. Orton, the desirability of an organization of plant pathologists. We also had some correspondence in regard to the matter with Dr. L. R. Jones and others. As a result, a meeting of the Patholo-

[1] Read at the Tenth Annual Meeting of the American Phytopathological Society, Baltimore, Md., December 25, 1918.

gists of the Department of Agriculture was called December 15, 1908. The report of this meeting is as follows:

Report of Meeting of Plant Pathologists Held at the Department of Agriculture, Washington, D. C., December 15, 1908, for the Purpose of Undertaking the Organization of an American Phytopathological Society

The meeting was called to order by the writer, who stated briefly the purpose, and nominated Mr. W. M. Scott as chairman. Mr. Scott was unanimously elected chairman and C. L. Shear secretary of the meeting. The secretary offered the following resolution:

Resolved, That it is the sense of this meeting that an association of plant pathologists be organized.

Dr. E. F. Smith inquired as to the scope and membership of the proposed society. The prevailing opinion, as expressed, seemed to be that the society should be very broad in its scope and should admit to membership all persons engaged in phytopathological work.

The resolution was then adopted. A motion was then made that a committee of three be appointed by the chairman to communicate with the plant pathologists of the country and make preliminary arrangements for the organization of such a society at the meeting of the American Association for the Advancement of Science to be held in Baltimore from December 28th, 1908, to January 2, 1909. This motion was carried and the chairman appointed as members of the committee C. L. Shear, Donald Reddick, and W. A. Orton.

Dr. Smith suggested that as one of the important questions in connection with the new society would be the best time and place of meeting, it was his opinion that it might take place in connection with the annual meeting of the Association of Agricultural Colleges and Experiment Stations.

Meeting adjourned.

(Signed) C. L. SHEAR,
Secretary.

The Committee on Organization acted at once and prepared the following letter, which was sent to one hundred and thirty pathologists or persons interested in the subject:

Washington, D. C.,
December 16, 1908.

At a meeting of plant pathologists held at Washington, D. C., December 15, 1908, and after consultation with several experiment station pathologists, it was unanimously decided that an effort should be made to organize an American pathological society. The undersigned were appointed a committee to arrange for a preliminary meeting in connection with the American Association for the Advancement of Science at Baltimore.

You are cordially invited to be present December 30, 1908, at an hour and place to be announced later, and take part in the organization of the proposed society, which it is believed can exercise great influence in advancing the study of phytopathology in America. If impossible for you to be present will you kindly inform

the committee whether you would be willing to join such a society and also what you think should be its policy with regard to time and place of meetings.

C. L. SHEAR,
DONALD REDDICK,
W. A. ORTON,
Committee.

In response to this call fifty-four persons met at the Eastern High School on the date mentioned. The following report of the Committee on Organization was read:

Report of Committee on Organization of an American Phytopathological Society Presented at Baltimore meeting December 30, 1908

At a meeting of plant pathologists, which was held at Washington, D. C., December 15, 1908, after consultation and correspondence with several experiment station pathologists a Committee was appointed to take preliminary steps toward the organization of an American Phytopathological Society. This committee begs to submit the following report:

In accordance with instructions the Committee sent out a letter of announcement and invitation to the accompanying list of one hundred and thirty plant pathologists, requesting those who could not be present to state whether they would be willing to join the proposed society and what they considered the best time and place of meeting. Replies show that the majority are in favor of meeting with the American Association for the Advancement of Science. No one from whom an answer was received disapproved of the organization of the proposed society.

The Committee recommends that temporary organization of the society be effected at once by the selection of a president, secretary-treasurer, and three members of a council, one for three years, one for two, and one for one, and that the full council, consisting of the president, secretary-treasurer, and the three elected members, be instructed to draft a constitution and by-laws for the society and also take under consideration and report recommendations in regard to other important matters.

The question of time and place of annual meeting is one which can perhaps be determined at present. Another question for consideration is the status of the organization—whether it shall be purely official, as the association of agricultural chemists, or otherwise. The question of publication will also need consideration—whether the society should undertake the publication of a journal, as is done by the Economic Entomologists. It is our opinion that an American Phytopathological Society, placed upon a broad and generous foundation, may be of invaluable aid in promoting the future development of this important and rapidly growing subject in America, and that its influence may be made of international importance. The questions regarding the dissemination and spread of plant diseases, whether from farm to farm, from State to State, or from one country to another, and the most efficient steps which may be taken to prevent their spread, are subjects which we believe should be considered by the society. The subject of courses of study in plant pathology, and the necessary requirements would also be worthy of consideration. The society should also be able in many other ways to direct and advance sound pathological work in America.

Your Committee recommends that the organization be known as The American Phytopathological Society, and that all plant pathologists present, and all of those to whom the invitation to attend this meeting was sent, who shall sign the constitution and by-laws and pay the necessary membership fee, shall be regarded as charter members of the society.

C. L. SHEAR,
DONALD REDDICK,
W. A. ORTON,
Committee.

Temporary organization of the meeting was effected by the election of A. D. Selby as chairman and Donald Reddick, as secretary, and a motion made to adopt the report of the Committee and proceed to organize the society. This was followed, as those who were present will recall, by an animated discussion regarding the desirability of starting a new society. A few speakers opposed the proposition as being detrimental to the advancement of botanical unity and organization.

The three previous botanical organizations had recently combined into the present Botanical Society of America and it appeared to some that the organization of a new society was a retrograde movement. The advocates of the new society maintained that the aims and purposes of the proposed organization, as set forth in the Committee's report, could not be attained without a separate society.

After full discussion the motion was carried by a vote of thirty-two to twelve, and temporary organization of the society was effected by the election of L. R. Jones, president; A. D. Selby, vice president; C. L. Shear, secretary-treasurer; J. B. S. Norton and B. M. Duggar, councilors.

The council was instructed to consider and make recommendations in regard to the permanent organization, policy, and affiliation of the society, and to arrange for the next meeting. A brief report of the Baltimore meeting was published in Science,[2] under the head "Science Notes and News."

The council held a meeting in Washington March 26–27, 1909, and carefully considered the question of affiliation of the society and the possibilities of establishing a journal. It was decided to hold the first regular meeting in Boston December 28–31 in connection with the American Association for the Advancement of Science and to recommend the publication of a phytopathological journal. The various possibilities of such affiliation with existing organizations, as division, section, or branch, as would admit of sufficient autonomy to accomplish the fundamental and essential purposes of the phytopathologists, and at the same time eliminate as far as possible conflicts in meetings and programs, were thoroughly

[2] Science n.s., **29**: 179, Jan. 29, 1909.

discussed by the council and with officers of the other botanical organizations, and it was finally decided best to remain a separate society, but to affiliate and coöperate as closely as possible with the Botanical Society and Section G of the American Association for the Advancement of Science.

The following paragraph from the letter of invitation to pathologists, dated October 25, 1909, shows how modest our financial requirements were:

> I am instructed by the council of the American Phytopathological Society to invite you to become a charter member of the society. Please signify your acceptance of the invitation by remitting to the secretary-treasurer 50 cents by post-office money order, to be used in defraying the expenses of the society this year.

The Boston meeting, a condensed report of which was published in Science,[3] was generally acclaimed a great success.

Most of those who were in doubt as to the advisability of organizing a new society or who were openly opposed to it at Baltimore, frankly stated "that the large membership list, the numerous papers presented, and the great enthusiasm showed by the men had thoroughly convinced them that the organization of the Society was fully justified."[4]

The most important business transacted at this meeting was the action of the Society in directing the council "to consider the establishment of a society journal devoted to phytopathology, and to proceed with its publication whenever in its judgment sufficient support is assured." Dr. Jones has already told the story of the Journal.

Our history since has been one of rapid and successful development, with just enough friendly rivalry and difference of opinion to prove stimulating and to promote the progress of science and the Society. Beginning with one hundred and thirty Charter Members we have now nearly reached four hundred. The principal records of our history since the Boston meeting are to be found in the annual reports published in Phytopathology.

So much for the past! May I not be permitted a few words in regard to the present and future.

This is the greatest epoch in the history of the world; the greatest catastrophe followed by the greatest opportunity. New foundations for the future structure of science, ethics and politics are to be built. A new spirit of brotherly love and service must pervade our activities in science as well as in all other lines, else the future structure will be but another tower of Babel whose downfall may be greater than the present.

[3] Science, n.s., **31:** 742–757, March 13, 1910.

[4] Quotation from unpublished portion of report of Boston meeting.

Science like all other agencies is equally potent for good or evil. No more appalling demonstration of this can be imagined than that which the world has just witnessed. With proper aims and motives it may be of the greatest usefulness in aiding and improving mankind.

In closing this sketch it seems fitting to call attention to what we believe to be some of the important opportunities and obligations which present themselves to us as scientists and men at this time.

In the first place, we believe there will be great need during the reconstruction period and the future for the most active international organization and coöperation of pathologists as well as other scientists. A great international pathological society could accomplish much in advancing research and in helping to solve many problems of worldwide importance. Steps should be taken to confer with our colleagues in other countries in regard to the possibilities of some closer union of interests and organizations. Our Canadian friends have already taken steps to become affiliated with us and the conditions appear propitious for closer coöperation and coördination of the common interests and aims and mutual benefit of pathologists throughout the world. The strength which would come from such union would be of inestimable value in increasing the efficiency and usefulness of pathological work and promoting the solution of the many important international problems connected with research, quarantine, inspection, and disease surveys; while exchange of information, specimens, and cultures could be greatly facilitated and closer and more sympathetic relations established which would greatly advance our knowledge and usefulness to mankind, create a greater interest in and appreciation of our work and secure greater encouragement and support for research.

In our relations to each other and to the general public great good can be accomplished by closer coöperative efforts, broader and deeper interests in public affairs and a greater exhibition of the truth and justice for which true science should stand.

Let us not be among the last of the groups of scientists who shall accept the great responsibility and improve the wonderful opportunity now offered for world service in advancing science and promoting the brotherhood of mankind.

BUREAU OF PLANT INDUSTRY
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

KEEPING QUALITY OF STRAWBERRIES IN RELATION TO THEIR TEMPERATURE WHEN PICKED

NEIL E. STEVENS

In discussing the factors which influence the keeping quality of strawberries, Fletcher (2, p. 159) says, "Strawberries are picked preferably in early morning, because they are injured by standing in the sun after picking; because they ship better if picked when cool and firm." More and Truax urge (4, p. 4) that "If possible the picking and packing should be done during the cooler parts of the day," while Stevens and Wilcox (7, p. 7) report that in experiments conducted during 1917, berries picked early in the day in Louisiana and shipped to Chicago arrived in better condition than those picked near noon. The latter writers (8) have called attention also to the fact that strawberries and other small fruits, when exposed to the sun, usually have a temperature considerably above that of the surrounding air. More and Truax also (p. 7) call attention to the injurious effect of leaving berries in the sun, and advise the use of small picking trays because of the "danger of the fruit becoming overheated by exposure to the sun." All the writers mentioned agree that early picked berries are cooler than those picked later and that low temperatures tend to retard the development of mold.[1]

The only objection that has been raised to early picking is that strawberries are commonly wet with dew early in the morning, and many commercial growers refuse to pick until the berries are dry because of the supposed injurious effect of handling them when wet. Fletcher (2, p. 159) sums up the matter as follows: "The only objection to picking very early is that the berries may be wet with dew. Divergent opinions are held as to whether this injures their shipping qualities. . . . . Probably it is safer to wait until the sun has dried the dew, provided all the berries can be picked before it gets hot. In hot weather, if it is necessary to choose between picking in the early morning while the berries are still

[1] In the recent publications on rots of strawberries it has been assumed by the writers concerned (F. L. Stevens, Coons and Nelson, and Stevens and Wilcox) that the first report of *Rhizopus nigricans* as a cause of rot on strawberries was Stevens' note published in 1914. It is now apparent that this is not the case since in a paper on "The Black Moulds" published in April, 1913, Walker makes the following comment (9, p. 117): "It [*Rhizopus nigricans* Ehrb.] also causes a large proportion of the rot of strawberries."

wet with dew or rain, and deferring picking so late that some will be gathered in the heat of midday, pick early."

On the other hand, experiments carried out by Smith and Goodman, in Canada, are reported by Winslow (10) as showing "the great disadvantage of shipping [strawberries and raspberries] even slightly wet." These workers found that the shipping quality of fruit picked slightly wet is "made superior to the best ordinary shipments by fanning about one hour," in a "dehydrator, which consists of a suitable chamber through which air is forced at high speed by an electric fan." Coons and Nelson (1, p. 25) flatly condemn shipping strawberries wet, and state that "It is needless to say that wet berries will not carry so well as dry fruit."

In the course of investigations on the diseases of various small fruits during the summer of 1918, considerable information has accumulated, which is of interest in its bearing on these disputed points. As some of the observations form parts of more extended studies which will not be completed for several years, they are here presented through the courtesy of the various investigators for their bearing on the question as to whether the keeping quality of fruit picked early in the day, while cool, is superior to that picked later, even though the former is wet.

In presenting these results, it is not intended to raise the question as to whether at any given temperature wet or dry fruit is preferable, or whether fruit picked wet might be so dried as to improve its keeping quality. Both these questions seem to the writer to involve other factors somewhat difficult of control and determination and not yet fully understood. It is intended only to show that strawberries picked early in the day, while cool, and therefore under ordinary conditions wet, will keep better than similar fruit picked later in the day at a higher temperature and dry, if the subsequent treatment of the fruit is the same.

RESULTS IN MAINE AND NEW HAMPSHIRE

The rots of strawberry fruits have been studied chiefly in the Southern states. This is undoubtedly due to the fact that southern grown strawberries are, in general, shipped greater distances to market, and the losses from decay are thus more evident than in the case of northern grown fruit. The strawberry is, however, an important crop in many parts of the country and it seemed desirable to check the results obtained in the south by observations in some northern region. To this end several of the New England states were included in the work of the season of 1918.

In Maine, during the strawberry picking season of 1918, there was an unusual amount of rain and much damp, cloudy weather. Under these circumstances (7, p. 8) Botrytis was so abundant that toward the close

of the season more than two-thirds of the berries in some fields were infected. The weather permitted only a single test (one crate) of the relation of temperature at picking time to keeping quality. The results are presented in table 1. It is desirable that further attention be given to this section as it is one of the most northern in the eastern United States and offers conditions quite different from those in which most of the earlier work has been done. There is some indication that Rhizopus may here be relatively less abundant than further south.

The observations in New Hampshire were all made by Dr. A. H. Chivers and are much more complete and satisfactory than those in Maine. The data on the relation of time of picking to keeping quality, which are presented in table 2, were secured in connection with experiments planned to test other points. The results for the variety Dr. Burrill are typical of those obtained with other varieties in other places, that is, the keeping

TABLE 1

Keeping quality of strawberries (variety Senator Dunlap). Lewiston, Maine, July 3–6, 1918

TIME OF PICKING	TEMPERATURE OF BERRIES	CONDITION	PER CENT SOUND THREE DAYS AFTER PICKING
	°C.		
8.00 a.m.	16	Wet	88
10.00 a.m.	20	Dry	82
12.00 m.	24	Dry	68

quality of the berries picked early in the morning is superior to that of berries picked later and the per cent of sound berries declines more or less regularly until 2.00 p.m. With William Belt, a variety which Chivers reports as showing poor keeping quality, the results were extremely erratic. In the first series the berries picked at 6.00 a.m. showed the best keeping quality, those picked at 8.00 a.m., the poorest; in the second test this condition was almost reversed. Evidently with this variety some undetermined factor, possibly previous infection by fungi, affected keeping quality.

Dr. Chivers' notes on the fungi affecting strawberry fruits at Hanover, New Hampshire during 1918 are of interest. "These fungi (Botrytis and Rhizopus) have attacked a considerable amount of fruit in the bed, and have appeared in all baskets which have been under observation. During the earlier part of the season the Botrytis prevailed, but during the later part the Rhizopus appeared more frequently than the Botrytis."

TABLE 2

Keeping quality of strawberries, Hanover, New Hampshire

TIME OF PICKING	TEMPERATURE OF BERRIES WHEN PICKED	CONDITION	PER CENT SOUND FOUR DAYS AFTER PICKING	
			Variety	
			Dr. Burrill	Wm. Belt
First test. June 27–July 1, 1918				
	°C.			
6.00 a.m.	9.0	Wet	82.0	60.0
8.00 a.m.	18.0	Wet	75.0	15.0
10.00 a.m.	21.0	Nearly dry	70.0	30.0
12.00 m.	29.5	Dry	73.0	38.0
2.00 p.m.	32.0	Dry	67.0	42.0
4.00 p.m.	29.0	Dry	70.0	36.0
Second test. July 3–7, 1918				
6.00 a.m.	9.5	Wet	50.0	10.5
8.00 a.m.	12.0	Wet	47.2	40.0
10.00 a.m.	21.0	Wet	36.0	8.0
12.00 m.	27.5	Dry	36.7	19.0
2.00 p.m.	29.0	Dry	30.0	10.0
4.00 p.m.	30.5	Dry	38.5	30.8

EXPERIMENTS IN MASSACHUSETTS

In connection with his investigations of pathological problems in the Boston market, Mr. John G. Hall conducted some tests on the keeping quality of strawberries, table 3. A crate of berries was used in each series. The berries were all picked near Falmouth, Massachusetts, and shipped to Boston where they were held several days before examination.

In all the tests the beneficial effect of early picking is evident. That there was a falling off in keeping quality in the later pickings in series two, despite a slight drop in the temperature of the berries (due to falling air temperature) may indicate that prolonged exposure to the sun has an injurious effect on strawberries even when it is not accompanied by actual rise in temperature.

OBSERVATIONS IN CONNECTICUT

The prejudice against picking strawberries wet which prevails among growers in many sections has hitherto made it impracticable to observe the results of this method on a large scale. Fortunately, however, the writers learned through Mr. E. M. Stoddard of the Connecticut Experi-

ment Station of a firm in Branford, Connecticut, which has made a practice for many years of picking strawberries early in the morning. For two weeks during June, 1918, the writer had the fields and crop of this firm under constant observation. Picking regularly began at 6.00 a.m. (5.00 a.m. normal time) and continued until the crop for the day was harvested; an unusual opportunity was thus afforded for comparing the keeping quality of berries picked at different temperatures. The berries, chiefly of the

TABLE 3

Keeping quality of strawberries (variety Echo), picked at Falmouth, Massachusetts and shipped to Boston, June, 1918

TIME OF PICKING	TEMPERATURE OF BERRIES WHEN PICKED	CONDITION	QUALITY FIVE DAYS AFTER PICKING
Series 1. June 18–23			
	°C.		
8 a.m.	18	Wet	Good
10.00 a.m.	20–21	Dry	Good
12.00 m.	25–26	Dry	Rather soft
2.00 p.m.	27–28	Dry	Poor, scalded appearance
Series 2. June 19–24			
			PER CENT SOUND FIVE DAYS AFTER PICKING
9.00 a.m.	20	Dry	66.3
11.00 a.m.	21	Dry	55.5
1.00 p.m.	18	Dry	43.7
Series 3. June 20–25			
6.00 a.m.	10	Wet	90.9
8.00 a.m.	15	Wet	91.8
10.00 a.m.	20	Dry	81.2
12.00 m.	25	Dry	49.0

Glen Mary, Big Joe, and Sample varieties, were shipped to Boston under refrigeration and to New Haven and New London without refrigeration, shipments were followed to each of these markets and the condition of the various lots of berries noted. In addition to inspections made by the writer, two cars containing both early (wet) and late (dry) picked berries were inspected at Boston by Mr. C. E. Merrill and Mr. Geo. W. Payne, Food Products Inspectors at that market. The reports of Merrill and Payne confirm the observations of the writer that the early picked berries were in general superior and in no case inferior to those which were picked

later. This is further evidenced by an experiment (one crate) duplicating those recorded above, table 4.

As an indication of the extent to which temperatures may be kept down by early picking it may be mentioned that in many instances crates of early picked berries were as cool as 12 to 13°C. when loaded into the refrigerator cars. And on one occasion berries were picked early in the morning and shipped to New London, Connecticut, without refrigeration, arriving there in good condition and at a temperature of 14°C. at 11.00 a.m., when the air temperature was above 20°C.

TABLE 4

Keeping quality of strawberries (variety Glen Mary) Branford, Connecticut, June 20 to 23, 1918

TIME OF PICKING	TEMPERATURE OF BERRIES WHEN PICKED	CONDITION	PER CENT SOUND THREE DAYS AFTER PICKING
	°C.		
7.00 a.m.	11.5	Wet	52
9.00 a.m.	20.0	Just dry	27
11.00 a.m.	23.0	Dry	20

OBSERVATIONS ON OTHER SMALL FRUITS

In the course of studies of fungi affecting blackberries and raspberries during the summer of 1918, B. O. Dodge and William E. Seifriz have made occasional tests similar to those cited for strawberries. Dodge worked with dewberries in North Carolina and New Jersey, as well as with blackberries in New Jersey, and Seifriz with raspberries (both red and black varieties) in Maryland, New Jersey and New York. The writer has examined the unpublished results of these investigations which show that there is some advantage in early as compared with late picking of these fruits, though the difference is, in general, less than with strawberries. In no case was there evidence of any injury to keeping quality through picking while the dew was on the berries. The importance of temperature in affecting the keeping quality of red raspberries, and, in particular, the injurious effect of delay in cooling was pointed out by Ramsey (5) in 1915.

The evidence thus far presented has been derived from field observations and from experiments on the keeping quality of picked berries. Recently Hawkins and Sando have attacked the problem from a quite different point of view with very intersting results. These investigators measured the amount of pressure required to puncture the epidermis of strawberries, raspberries, blackberries, and cherries with a glass needle of known dimensions. They found that in all cases lowering the tem-

perature of the fruit increased the resistance of the epidermis to mechanical injury. In view of the fact that *Rhizopus nigricans*, the fungus most destructive to ripe strawberries, enters the fruit chiefly through wounds the importance of this discovery in relation to the question of picking and handling strawberries at low temperature is obvious.

SUMMARY

Observations in four New England states during 1918 indicate that strawberries picked early in the morning, while cool, generally keep better even though wet, than similar berries picked later, after they have been warmed by the sun.

BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

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PLANT PATHOLOGY IN JAPAN

H. ATHERTON LEE[1]

The following brief statement of the status of plant pathology in Japan may contain some facts hitherto not generally known to American plant pathologists.

The Phytopathological Society of Japan has about eighty members, almost all of whom are pathologists; but there are included some entomologists, horticulturists or others having an interest in pathology. This society publishes annually a journal containing the annals of the society, with contributions in Japanese, English or German; articles published in English or German are usually abstracted in Japanese, while those in Japanese are usually abstracted in English.

In addition to this journal, there is published independently a periodical entitled "The Journal of Plant Protection." It is printed exclusively in Japanese. Although containing chiefly articles of a popular nature, it frequently has a contribution which contains original research in either entomology or plant pathology. The Botanical Magazine of the Tokyo Botanical Society also frequently contains articles pertaining to plant pathology.

The bulletins and reports of the experiment stations and agricultural colleges are for the most part in Japanese but are occasionally in English or German. Many Japanese pathologists have published in foreign periodicals.

The plant pathologists in Japan are for the most part attached to the experiment stations of the prefectures or to that of the Imperial government. There are forty-two prefectural agricultural experiment stations, a prefecture corresponding somewhat to our county. Not all of the experiment stations have plant pathologists, but some have more than one. The Imperial government maintains a central experiment station at which there are two pathologists and a number of assistants. At the agricultural colleges also there are of course plant pathologists. A number of

[1] The writer is indebted to Dr. Y. Uyeda of the Imperial Agricultural Experiment Station at Nishigahara, Tokyo; to Mr. N. Suematsu of the Agricultural College, of the Imperial University, Komaba, Tokyo, and Mr. T. Nishida, in charge of the Kobe substation, Imperial Plant Quarantine Service, Kobe, for much of the information presented here.

privately conducted agricultural schools are maintained, to some of which plant pathologists are attached.

We in America are possibly inclined to look upon plant pathology as a science adopted but recently in Japan. In 1886, however, which was fairly early in our own history of plant pathology, Dr. Shirai of the Komaba Agricultural College at Tokyo was giving courses in plant pathology in connection with the study of botany. Since that time the advance of the science in Japan has been very much the same as in America. The Japanese probably exceed us in their acquaintance with the literature of other countries. Every pathologist in Japan speaks English and many of them speak German. In all cases they have a reading knowledge of German and French in addition to English.

It would be rather presumptive to make oneself a judge of the quality of the work in Japan. To mention the investigations in the writer's field of pathological research only, the study of citrus diseases, some very excellent work has been done, showing great patience in obtaining conclusive results, as well as ingenuity and initiative in devising experimental methods. Spraying methods have been well worked out; the control of citrus scab by spraying is so successful that almost every grower follows as a matter of course the spraying schedule outlined by the investigators.

The adoption of control measures, obtained after careful work by investigators, is sometimes made compulsory if deemed necessary by prefectural or government leaders. Ample power to enforce the adoption of such measures is given by law to government leaders. In addition there is a very efficient plant quarantine service which probably has an advantage over our own quarantine service because of the insular nature of Japan's territory.

In conclusion it would seem that if we in America are to maintain our profession at the apex of progress we should keep in close touch with Japanese literature. Japanese pathologists realize that there is much to be gained from contact with American research, and plant pathology in America can profit equally by such coöperation.

OFFICE OF FRUIT DISEASE INVESTIGATIONS
BUREAU OF PLANT INDUSTRY
U. S. DEPARTMENT OF AGRICULTURE
TOKYO, JAPAN

PHYTOPATHOLOGICAL NOTES

A staining method for vascular tissue. While working on a problem in plant physiology at Cornell University in 1916–17, a new method was evolved for clearing and staining leaves of dicotyledonous plants to show the vascular tissue.

Portions of the leaves to be studied were first placed in hot but not boiling water for ten to twenty minutes in order to extract the tannin, so that it would not interfere with the subsequent staining process. They were then transferred to nitric acid—50 to 85 per cent concentration. For thin and tender leaves like those of *Vitis vulpina* the weaker concentration was found best. Too strong acid blistered the tissues.

When entirely devoid of color the specimens were washed in running water for ten to fifteen minutes and dehydrated in a series of 20, 50, 70, and 95 per cent alcohol. A one per cent solution of methylene blue in 95 per cent alcohol was used as a stain. It effectively penetrated the vascular tissue in about eighteen to thirty-six hours. Destaining in an acid alcoholic solution was necessary to remove the stain from the epidermis and mesophyll.

Complete dehydration was followed by clearing in xylol. From the xylol they were passed through a short series of xylol-castor oil mixtures and finally mounted in the castor oil between two glass slides held together by gummed paper.

Castor oil was found to be better than glycerine because of its more rapid penetration and also because it did not take up moisture. The mounts made in this way two years ago are still in excellent condition.

M. R. Ensign

Sweet potato mosaic. In the fall of 1918 a new and heretofore undescribed disease was found on sweet potatoes (Nancy Hall variety) in two plantings about half a mile apart in the vicinity of Pine Bluff, Arkansas. In the first field of about a quarter of an acre four or five plants showed the disease. In the second about a dozen plants were affected. They were scattered promiscuously throughout the fields.

The symptoms are characteristic of mosaic. All of the leaves on diseased vines were more or less dwarfed, malformed, and mottled. The vines themselves were small and lacked vigor. A few small potatoes were produced under each vine but the comparative weights of the pota-

toes from twelve diseased vines and an equal number of healthy ones growing adjacent showed a difference of about 300 per cent.

There was no evidence that the disease is directly communicable between adjacent plants, for even though the healthy and diseased vines intertwined, no spread of the disease was observed.

One year ago the owner of the larger field of potatoes noticed this peculiar mottling, and thinking that he might possibly have a new variety, carefully bedded some of the potatoes and in this way produced the plants which were found in his field.

Further investigation of this disease is under way.

M. R. ENSIGN

FIG. 1. BUNTED KERNELS SHOWING BRUSH IN UPPER ROW. NEMATODE AFFECTED KERNELS IN LOWER ROW

A simple method of distinguishing nematode galls of wheat from bunted kernels. In making a survey of the distribution of the wheat nematode (*Tylenchus tritici*) in West Virginia, some difficulty was at times encountered in distinguishing kernels with nematode galls from those affected with stinking smut, especially if the number of infected kernels was very slight. Typical bunt kernels are easily distinguished, being of a lighter color and easily crushed. Frequently, however, hard, almost black, smut kernels are found. In examining a large number of these non-typical

kernels, I observed that bunt kernels invariably showed the presence of the apical tuft of hair known as the brush, although in many cases drawn to a pencil. Nematode affected kernels never develop the brush, and in many cases have an indentation at the tip. This, together with the frequent tendency to form multiple kernels, seems to indicate that the invasion takes place at the very earliest stage in the development of the kernel.

It occurred to me that this method of distinction might be worthy of mention, as the examination of exhibit specimens and literature gives evidence that others have encountered similar difficulty.

ANTHONY BERG

Erratum. A correction should be made in the phytopathological note on "An epidemic of corn smut following hail," in Phytopathology, **8**: 58, November, 1918. The printed article gives 19 per cent as the amount of smut following hail, whereas the actual percentage of infection observed as reported by the author was 91.

Personals. Mr. John A. Stevenson, formerly pathologist of the Insular Experiment Station at Rio Piedras, Porto Rico, has been appointed plant pathological inspector for the Federal Horticultural Board, Department of Agriculture.

Lieut. John Monteith, Jr., has been reinstated in the position of assistant in plant disinfection for the Federal Horticultural Board. Previous to his appointment in the Department of Agriculture and his subsequent enlistment in the military service, he was a graduate student at the State University of New Jersey.

Mr. C. C. Thomas, assistant in plant disinfection, has been transferred from the Federal Horticultural Board to the Office of Foreign Seed and Plant Introduction, Bureau of Plant Industry.

Mr. Chas. E. Owens, who has been instructor in plant pathology at the Oregon Agricultural College for several years, has been appointed plant pathologist in the Office of Cereal Investigations, Bureau of Plant Industry, and will take charge of cereal rust experiments being conducted in Oregon by the Department of Agriculture in coöperation with the Oregon Agricultural Experiment Station.

Dr. R. D. Rands, who recently sailed for the Dutch East Indies to accept a position as plant pathologist with the Dutch Government, reports safe arrival in Java. His headquarters will be at the botanical garden, Buitenzorg, in association with Dr. C. J. J. Van Hall, where he will have responsibility for the investigation of certain diseases of the Para rubber plant and banana.

APPENDIX

REPORT OF THE TENTH ANNUAL MEETING OF THE AMERICAN PHYTOPATHOLOGICAL SOCIETY

The tenth annual meeting of the Society was held in Gilman Hall, Johns Hopkins University, Baltimore, Maryland, December 23–28, 1918, in conjunction with the American Association for the Advancement of Science and the Botanical Society of America.

About fifty members were present. The program was devoted chiefly to project conferences and reports of the War Emergency Board, accounts of which will be distributed separately. Sixteen papers were presented at the regular sessions, abstracts of these appearing in the January number of PHYTOPATHOLOGY. Twenty-nine new members were elected.

Joint sessions were held with Section G of the American Association for the Advancement of Science and also with the Botanical Society of America.

The following officers were elected:

President, C. L. Shear, U. S. Department of Agriculture, Washington, D. C.

Vice-President, I. E. Melhus, Iowa State College, Ames, Iowa.

Secretary-Treasurer, Geo. R. Lyman, U. S. Department of Agriculture, Washington D. C.

Councilor for two years, Donald Reddick, Cornell University, Ithaca, New York.

Associate Editors for three years, Geo. L. Peltier, Agricultural Experiment Station, Auburn, Alabama; F. D. Heald, Agricultural Experiment Station, Pullman, Washington; J. E. Howitt, Ontario Agricultural College, Guelph, Canada; and J. B. S. Norton, Maryland State College, College Park, Maryland.

Business Manager of PHYTOPATHOLOGY, Geo. R. Lyman.

The Society decided to hold its next annual meeting at St. Louis, Missouri, in conjunction with the American Association for the Advancement of Science, December 29, 1919, to January 3, 1920.

REPORTS OF COMMITTEES

The Committee on Common Names of Plant Diseases, Dr. Geo. R. Lyman, Chairman, presented a brief verbal report, stating that a list of names of the most common diseases would be prepared and distributed soon.

The Committee on Ways and Means, Dr. L. R. Jones, Chairman, made a brief verbal report.

The Committee on Standard Chart for Percentage Estimates of Injury to Diseased Plants made no report.

The Committee on Standards and Methods was appointed by the Council, as directed by the Society at its previous annual meeting, and consists of E. A. Bessey, H. P. Barss, B. M. Duggar, C. W. Edgerton, H. A. Edson, Frank D. Kern, I. E Melhus, W. J. Morse, W. A. Orton, Donald Reddick, C. L. Shear, Erwin F. Smith. Doctor Bessey made a brief verbal report, stating that the Committee had organ-

ized and allotted the treatment of the more important subjects to various members and groups of members of the Committee.

Prof. H. H. Whetzel presented a general report of the work of the War Emergency Board during the year. On motion this report was accepted, with the thanks and appreciation of the Society.

REPORT OF TREASURER OF THE SOCIETY, 1918

Receipts.		
Balance from 1917	$433.15	
Membership dues	1,891.33	
Exchange	.55	
Postage and copy of Constitution	.60	
Interest	23 15	$2,348.78
Expenditures:		
Stationery, etc	$51.30	
Printing	118.80	
Postage	14.10	
Clerical work	101.69	
Secretary's traveling expenses	30.43	
Member subscriptions to PHYTOPATHOLOGY	948.00	
Sinking fund	514.42	
Annual appropriation to PHYTOPATHOLOHY	200.00	$1,978.74
Balance on hand		370.04
Balance due sinking fund		315.58
Actual balance		$54.46

FINANCIAL STATEMENT OF BUSINESS MANAGER, PHYTOPATHOLOGY

Receipts:		
Balance from 1917	$398.67	
Subscription and sales, journal	1,504.63	
Subscriptions members American Phytopathological Society	948.00	
Advertising 1918	150.00	
Appropriation American Phytopathological Society for 1918	200.00	
Subscription transferred to publishers	5.01	
Interest on sinking fund, trust notes	45.00	$3,251.31
Expenditures:		
Manufacture of Journal:		
No. 6, Vol. VII	$301.10	
No. 1, Vol. VIII	275.01	
No. 2, Vol. VIII	190.33	
No. 3, Vol. VIII	231.61	
No. 4, Vol. VIII	236.39	
No. 5, Vol. VIII	222.12	

No. 6, Vol. VIII	221.46		
No. 7, Vol. VIII	279.57		
No. 8, Vol. VIII	333.93		
No. 9, Vol. VIII	252.40	$2,543.92	
Miscellaneous, publishers		116.77	
Insurance on Journal stock		5.40	
Transfer University of Wisconsin subscription to Plant Disease Literature Index for Botanical Abstracts		38.50	
Clerical work		85.33	
Transfer of subscription to publishers		5.00	
Postage, etc		4.40	$2,799.32
Balance			$451.99

A committee, consisting of C. R. Orton and H. P. Barss, was appointed to examine the accounts. This committee reported the accounts correct and the report was adopted.

RESOLUTIONS ADOPTED

A Committee on Resolutions Regarding Deceased Members, was appointed by the Chairman. This Committee which consisted of Mel. T. Cook, G. K. K. Link, and Donald Reddick, offered the following resolution, which was unanimously adopted:

"Within the past year there have passed from among us the following members of our Society: Dr. Byron D. Halsted, Vern B. Stewart, H. R. Vasey, E. W. Roark, Charles G. Crittenden, and Rose M. Taylor. The Society places on record its most sincere regret at the passing of these faithful and earnest colleagues. This expression of esteem for associates removed from our midst is enscribed with sorrow upon the minutes of our Society."

MISCELLANEOUS BUSINESS

On motion the Society voted to appropriate two hundred dollars from the available funds for the use of PHYTOPATHOLOGY in 1919.

A brief verbal report by the Chief Editor, Dr. W. A. Orton, was presented and accepted. In this connection the Society approved the recommendations of the Editor that hereafter all author's changes in proof of papers published in PHYTOPATHOLOGY be paid by the authors.

On motion a committee, consisting of H. P. Barss, E. C. Stakman, and A. D. Selby, was appointed to see that the interests of the States and their need for continuation of the extension and investigational work conducted by the U. S. Department of Agriculture under the Emergency Act in smut control, potato and truck crop improvement, and investigations and assistance in connection with market inspection work, are presented to the Congressional Committees and other members of Congress.

As a result of the questionaire regarding the work of the War Board and the desirability of continuing similar work which was sent to members, ninety-one replies were received. The great majority of the replies were highly complimentary to the Board and its work. In reply to the question as to whether a committee ought to be appointed to continue similar work, seventy-three answered in the affirmative and eight in the negative. The following motion regarding the organization and direction of such a committee was adopted:

"*Resolved*, That there be established a permanent committee to be called the Advisory Board of American Plant Pathologists representing the American Phytopathological Society.

The personnel of this Board shall be six members appointed by the Council, two each for periods of one, two, and three years, and thereafter two each year for a three-year term. These members shall represent the United States Department of Agriculture and the following regions: North, East, South, Middle West, Pacific Coast, and Canada. The Chairman of the Board shall be elected annually by the Board."

The duties of the Board shall be:

(1) To represent the American Phytopathological Society before the National Research Council.

(2) To prepare and distribute to the members an annual list of the active phytopathological projects in progress in the country.

(3) To arrange for conferences of groups of workers on related subjects at the annual meetings or elsewhere.

(4) To confer with workers in related fields, i.e., entomology, genetics, horticulture, and agronomy, to promote joint efforts on our common problems.

(5) To promote international relations in phytopathology.

(6) To take up such other problems as the Board may find necessary, subject to the approval of the Council.

The completed plans of this Board shall be presented to the Council of the Society for approval before being carried into effect.

The Council chose the following members: G. R. Lyman and Paul A. Murphy three years, C. R. Orton and H. S. Jackson two years, and H. P. Barss and H. W. Barre one year. The Council recommended that the Committee be designated the Advisory Board of the Society. For convenience in carrying on the work of this Board the following geographical divisions were adopted: Eastern Division, New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and West Virginia; Southern Division, Texas, Oklahoma, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Florida; Central Division, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Michigan, Ohio, and Kentucky; Pacific Coast Division, Washington, Oregon, California, Nevada, Idaho, Utah, Arizona, Montana, Wyoming, Colorado, and New Mexico; and Canadian Division, including all the Dominion of Canada.

The Canadian plant pathologists and the pathologists of the Southern States made formal application for recognition as divisions of the Society. By formal vote the Society approved of the organization of these two divisions, in accordance with the terms adopted by the Society in connection with the establishment of the Pacific Coast Division. The officers of the Canadian Division are, President, J. E. Howitt; Vice-President, W. A. McCubbin; Secretary-Treasurer, R. E. Stone; Councilors, Paul A. Murphy and W. P. Fraser. The officers of the Southern Division are, President, H. W. Barre; Vice-President, C. W. Edgerton; secretary, H. E. Stevens.

In order to provide the desired representation of the Divisions on the Council of the Society notice of the following proposed amendment to the constitution is here given: Article V, paragraph 2, add at the end of the first sentence the words: *for a term of two years and one member elected annually by each Division.*

On motion the President was directed to act as a representative of the Society to the National Research Council. It is implied that this is in addition to the Chairman of the Advisory Board in case two delegates from the Society are allowed.

On motion the Secretary was directed to send greetings and regrets to Dr. E. M. Freeman, president of the Society, who was prevented from attending the meeting on account of sickness.

C. L. SHEAR,
Secretary-Treasurer.

LITERATURE ON PLANT DISEASES[1]

COMPILED BY EUNICE R. OBERLY, LIBRARIAN, BUREAU OF PLANT INDUSTRY, AND FLORENCE P. SMITH, ASSISTANT

January, 1919

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Barrus, Mortier Franklin. Varietal susceptbility of beans to strains of Colletotrichum lindemuthianum (Sacc. & Magn.) B. & C. Phytopathology **8**: 589–614, pl. 1–4. D. 1918.

Barss, Howard Phillips. Some prune fruit troubles of non-parasitic nature. Better Fruit **13**, no. 7: 7–8. Ja. 1, 1919.

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Butler, Edwin John. Plant pathology. Ann. Rpt. Bd. Sci. Advice India **1915/16**: 103–113. 1917.

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Campbell, C. Sulla influenza diretta della linfa elaborata dal selvatico sul domestico, e sulla azione che soluzione acide, direttamento assorbite, esercitano sulla pianta. Atti R. Accad. Lincei, Rend. V. Cl. Sci. Fis., Mat. e Nat. **27** (1): 57–61. 1918.

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Colon, E. D. La eradication de la enfermedad de las rayas amarillas de la caña. Estac. Expt. Insul. Puerto Rico, Circ. 14, 6 p., 3 col. pl. 1918.

Crittenden, C. G. Pecan diseases other than scab. Bul. Georgia State Bd. Ent. **49**: 44–48, pl. 12–13. Ja. 1918.

Rosette, brown leaf spot (*Cercospora fusca* Rand), kernel spot (*Coniothyrium caryogenum* Rand) nursery blight (*Phyllosticta caryae* Peck), anthracnose (*Glomerella cingulata* (stonem) S. V. & S.), crown gall (*Bacterium tumefaciens* (S. M. & Town.), mildew (*Microsphaera alni* (Wallr.) Wint.).

Doidge, Ethel Mary. Walnut blight. So. Afr. Fruit Grower **5**: 68–69, illus. O. 1918.

Bacterium juglandis.

Dosdall, Louise. Overwintering of the aeciospores of Cronartium ribicola Fisher. Phytopathology **8**: 619. D. 1918.

[1] This list includes references, both American and foreign, to the literature of plant pathology and mycology of interest to pathologists. Foreign references published since January 1, 1917, have been included beginning with the list appearing in v. 7. no. 3, June, 1917.

All authors are urged to cooperate in making the list complete by sending their separates and by making corrections and additions, and especially by calling attention to meritorious articles published outside of regular journals. Reprints or correspondence should be addressed to Miss E. R. Oberly, Librarian, Bureau of Plant Industry, U. S. Dept. of Agric., Washington, D. C.

Dumée, Paul. Notes de mycologie pratique—V. Note sur les Polyporus ulmaris Sow. et Polyporus fraxineus Bull. Bul. Soc. Mycol. France **33**: 28–32. Jy. 1917.

Evans, Iltyd Buller Pole. Teff rust. Roy. Gard. Kew, Bul. Misc. Inform. **1918**: 228–229, illus. 1918.

Uromyces pedicellata on *Eragrostis abyssinica.*

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A letter written by Mr. Farquharson to the assistant director at Kew, "a remarkably graphic epitome of his life in Nigeria. The nature of the work, the methods by which he sought to solve the many difficult problems, and the kind of education that his experience had led him to believe best for such work are all fully discussed."

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Gabotto, Luigi. La peronospora del mais. Coltivatore **64**: 331–333, illus. Je. 1918.

Sclerospora macrospora.

Garbowski, L. Les champignons parasites recueillis dans le gouvernement de Podolie (Russie) pendant l'été 1915. Bul. Soc. Mycol. France **33**: 73–91, illus. Ja. 1918.

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Gertz, Otto. Ueber einige durch schmarotzende Cuscuta hervorgerufene Gewebeveränderungen bei Wirtspflanzen. Ber. Deut. Bot. Gesell. **36**: 62–72. My. 1918.

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Graves, Arthur Harmount. Resistance of the American chestnut to the bark disease. Science n.s. **48**: 652–653. D. 27, 1918.

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Höhnel, Franz von. Ueber die Gattung Leptosphaeria Ces. et de Not. Ber. Deut. Bot. Gesell **36**: 135–140. Je. 1918.

Kiessling, Ludwig. Ueber schädliche Nebenwirkungen der Formalinbeizung des Saatgutes auf die Keimung. Jour. Landw. **66**: 7–51. My. 1918.

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Lewis, Claude Isaac. Premature deterioration in fruit. Better Fruit **13,** no. 7: 5–7. Ja. 1, 1919.

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